Southeast Alaska
Cloudburst Chronicle
National Weather Service
Juneau, Alaska

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In this issue:

From the Editor: We apologize for the delay in getting this latest edition of the Cloudburst to you. As you can see we made major changes to our format. We hope you appreciate the work that was required to implement this change. Enjoy!

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New Forecast Zones Coming Soon!

By Chris Maier

Whenever we implement new technology in your Juneau Forecast Office, we always take a step back and evaluate whether or not we can improve our service. IFPS, the Integrated Forecast Preparation System, is the latest technology to come down the pipeline. In the IFPS scheme of things, our staff will edit graphical forecasts (similar to the "experimental graphical forecasts" that are available right now on our web site). The IFPS software can also automatically generate our text forecasts from those graphics. The eventual bottom line is that it will take our forecasters less time to prepare our suite of forecasts for Southeast Alaska.

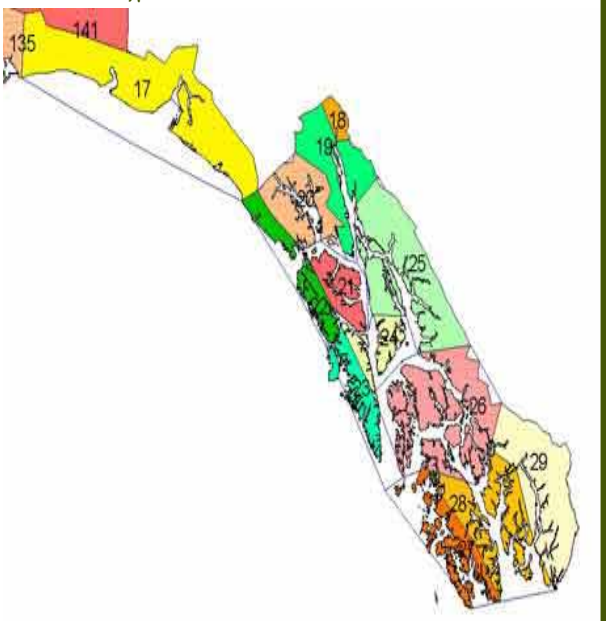
"...our ultimate goal is to improve our weather services in Southeast Alaska."

To date, we are only about halfway through spinning up IFPS. Though there is still much to be configured, we are far enough along that we are beginning to understand ways we can capitalize on this new technology. Our Meteorologist-In-Charge, Tom Ainsworth, put it best when he stated, "As always, our ultimate goal is to improve our weather services in Southeast Alaska." Well, one way in which we can improve our service is to create more public and marine forecast zones in Southeast Alaska. This change will provide more detailed weather information to you, our customers and partners.

Some of you might recall a time where the Juneau and Douglas area had its own unique forecast, separate from Hoonah and Angoon. With our new public zone configuration, this will be the case once again! How about in Lynn Canal? The weather in Skagway and along the Klondike Highway is almost always different than that in Haines and along the Haines Highway. Both areas will have their own forecasts under our new configuration. Another region that we are going to split in half is our public coastal zone from Cape Fairweather to Cape Decision. The map below illustrates how our new public zones will look. (A color version of this map is available under the "newsletter" section of our web site.)

With the highly variable weather throughout the Panhandle, we could realistically break out another two or three dozen zones. Unfortunately at this point, the technology will not allow us to go to that extreme. We had to prioritize which of our current zones needed to be downsized the most. We also had to balance out improving more of our marine forecast areas than our public ones. Due to these limitations, our public zones south of Frederick Sound are not going to change. For now, our service improvement in the South will hopefully be realized through smaller marine zones.

So when are we going to implement these new marine and public forecast zones? Most likely late this year or early in 2004. The time line for this improvement is being driven by our successful configuration of IFPS. We are required to formally announce the change over at least four months in advance, so stay posted. Please read on to see what our new marine zones will look like!

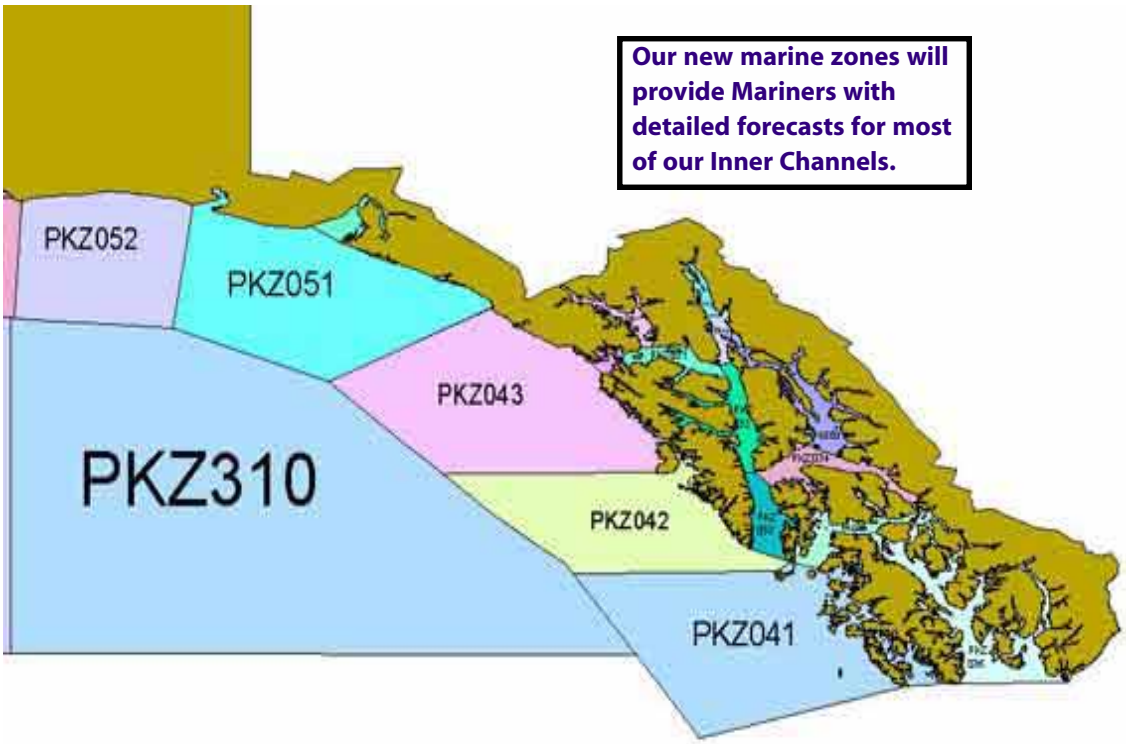


This map illustrates how our new, downsized public zones will look.

New Marine Zones

By Chris Maier

Another way we can improve our service in Southeast Alaska is by going to smaller, more detailed, marine forecast areas. The IFPS, Integrated Forecast Preparation System, technology will allow us to make such a change. Sometime later this year or early in 2004, we will also be implementing our new marine zones. The main idea behind this improvement was to break up our main Inner Channels into their own forecast areas. We also wanted to be able to provide better detail in our Outside Waters/Coastal Zone forecasts and warnings. All too often, for example, our forecasters are having to break up our southern coastal (Cape Fairweather to Dixon Entrance) marine forecast at Capes Ommaney or Edgecumbe. A second example is how different winds usually are Sumner Strait as opposed to Clarence Strait, or in Frederick Sound as opposed to Chatham Strait. Each of these areas will have their own marine forecast under our new plan.



Our new marine zones will provide Mariners with detailed forecasts for most of our Inner Channels.

Another new challenge for the Juneau Forecast Office is that we will be assuming warning and forecast responsibility for Eastern Gulf of Alaska Offshore Area (PKZ310). The Anchorage Forecast Office currently takes care of the Eastern Gulf Offshore Area. Our Anchorage office has the biggest forecast area in the entire country. Our taking on the Eastern Gulf Offshore Forecast is an attempt to help ease their workload a little.

It is hoped that as funds become available, we will be able to add more automated weather observing stations throughout these new marine zones. Please know this is something we fight for all the time! Not only would additional sensors help you better anticipate conditions before you get underway, but they also help our marine forecasters do a much better job.

Some big changes to our forecasts are coming soon. Our graphical forecasts can already be previewed on our web site. We are confident that you will be pleased with the end results. Please be patient with us as we implement these improvements over the next year. As always, feel free to give us your feedback at any time.

So what will all these new zones mean for NOAA Weather Radio?

Obviously, with more zones there will be more text. That will result in longer, but more detailed, forecasts. That is not exactly a good thing for our NOAA Weather Broadcasts where we strive to keep the routine broadcast cycle under five minutes.

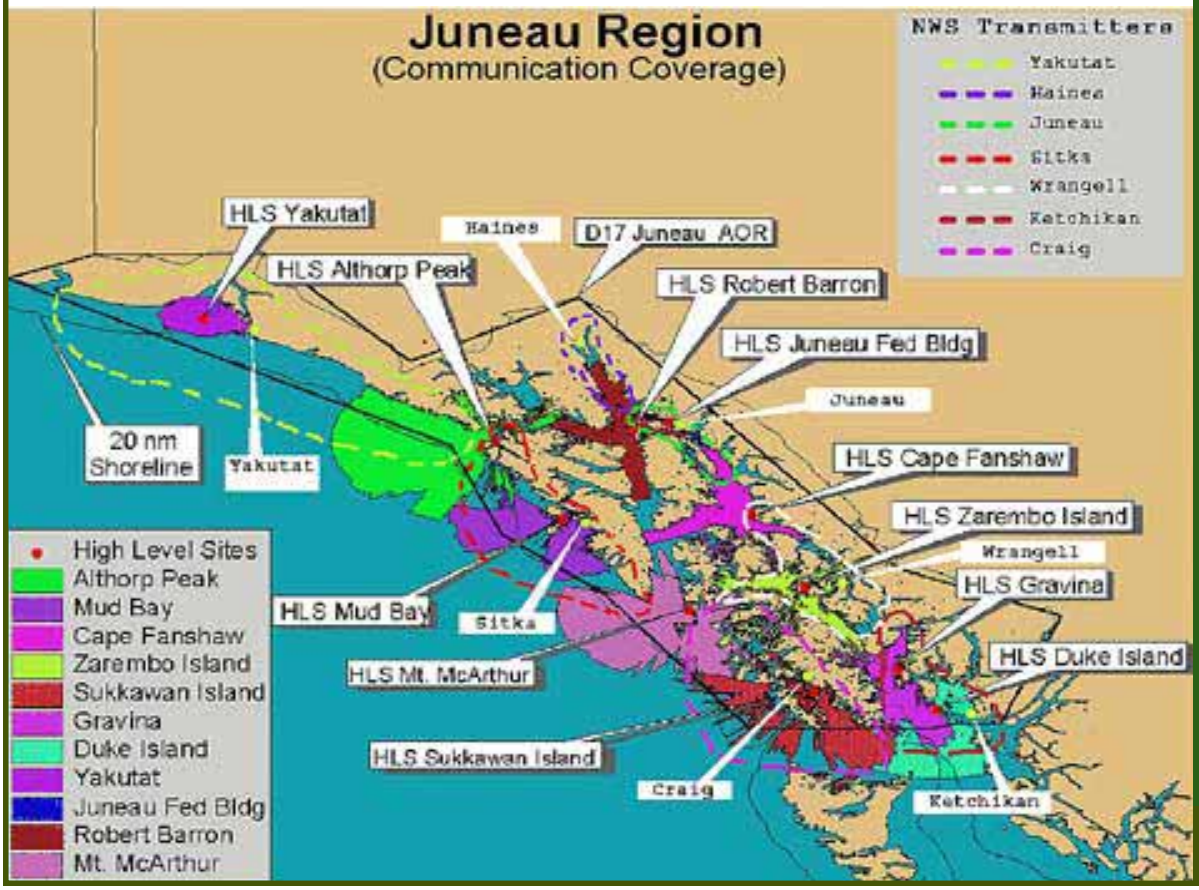
There are several solutions being worked on but the most promising strategy is to "localize" our NOAA Weather Radio Broadcasts in Southeast Alaska. Essentially, you would only hear the weather information for your immediate area and nearby zones for the next couple of days. The full marine and public zone forecasts will still be broadcasted, but at specified times throughout the day. Feel free to submit your own ideas on ways we can make our NOAA weather radio broadcasts more concise.

NOAA WEATHER RADIO FREQUENCIES IN SOUTHEAST ALASKA

Frequency	Transmitter Name/Location	Weather Channel
162.400 MHz	Juneau, Sitka, Ketchikan, Cordova	2
162.425 MHz	Althorp Peak, Cape Fanshaw, Sukkawan Island	4
162.450 MHz	Mt. Robert Barron, Zarembo Island, Duke Island	5
162.475 MHz	Craig	3
162.500 MHz	Mud Bay	6
162.525 MHz	Gravina, Mount McArthur	7
162.550 MHz	Haines, Wrangell, Yakutat	1

By Chris Maier

Recently, the 17th District of the United States Coast Guard, finished installing 5-watt NOAA weather radio (NWR) transmitters on all their high level communications sites in Southeast Alaska. The table to the right lists all the updated USCG hi-site locations, the original National Weather Service transmitters, and the various frequencies assigned to each. Also listed are the Weather Channels or "weather bands" associated with each frequency. It is important to ensure that your NOAA Weather Radio can receive all seven bands before heading out on the water or off into the back country. Many receivers only have five weather bands, and some have only three. Due to the fact that VHF radio is so important in Southeast Alaska, and because we have such complex terrain, we must utilize all seven FCC allotted weather frequencies. The estimated coverage map below attempts to depict where our weather radio signals should be audible. Our future plans call for establishing NWR transmitters near Petersburg (Lindenberg Mountain), in Central Chatham Strait (hopefully between Angoon and Tenakee Inlet) and near Cape Yakataga.



Regulations Requiring Monitoring and Listening to VHF Marine Radios (source: USCG)

A charter boat whose radio was not tuned to the proper channel missed a severe storm warning. By the time the captain learned of the storm, it was too late to return to shore. The ship sank and a couple of persons died. A yacht in trouble off the west coast of Mexico and far from help saw a passenger ship. What should have been a quick rescue could have turned to disaster when the passenger ship (improperly) had its radio off. The yacht was able to attract the ship's attention, however, and was rescued. Misunderstanding of passing intentions by approaching vessels and near collisions have repeatedly been averted by working radios tuned to the proper channel. The International Telecommunications Union established three VHF marine radio channels recognized worldwide for safety purposes:

* Channel 16 (156.800 MHz) - Distress, safety and calling
* Channel 13 (156.650 MHz) - Intership navigation (bridge-to-bridge)
* Channel 70 (156.525 MHz) - Digital Selective Calling

Regulations on radio watchkeeping exist for all boats and ships carrying marine radios, commercial, recreational, government and military, U.S. and foreign.

Tsunamis can be categorized in two ways:

- **Pacific-wide Tsunamis:** Generated by major, vertical, ocean bottom movement in deep offshore trenches.
- **Local Tsunamis:** Can be a component of the Pacific-wide tsunami in the area of the earthquake. It can also be a wave that is confined to the area of generation (within a bay or harbor) and caused by movement of the bay itself or a landslide.

In Southeast Alaska both types of tsunamis are possible. The entire Panhandle is at risk for Local Tsunamis, while our communities near or along the outer coast are also at risk for Pacific-wide Tsunamis.

The 1964 Alaska Good Friday earthquake and tsunami caused $30 million in damage in and near the coastal community of Kodiak, Alaska. Of the 132 fatalities that resulted, 122 of those deaths were the direct result of the tsunamis, not the earthquake.

Sitka Declared TsunamiReady and StormReady!

By Chris Maier

The residents and visitors of Sitka can sleep a little more soundly at night. On Monday, July 7, a ceremony was held honoring Sitka, Southeast Alaska's first TsunamiReady and StormReady community. Kudos to Sitka Fire Chief and Emergency Manager, Dave Miller, and Safety Specialist, Nathan Young, for all the hard work they put in to accomplish this goal. It is a very big deal for a community to be designated TsunamiReady and StormReady. FEMA Region 10 Director, John Pennington, and the Director of Alaska Division of Emergency Services (ADES), Dave Liebersbach, both attended the ceremony and gave speeches commending Sitka for its level of preparedness for natural disaster. Tom Ainsworth, Meteorologist In Charge at our National Weather Service (NWS) Forecast Office in Juneau, emceed the event and presented Chief Miller and Sitka City Administrator, Hugh Bevan, with Sitka's official certification and signs.

"Today we are making history by honoring Sitka for establishing a way to better protect citizens from tsunamis and severe weather threats," said NWS Alaska Regional Director Richard Pryzwarty. "These communities have demonstrated a strong commitment to putting infrastructure and systems in place that will save lives and protect property in the event of these damaging and hazardous events."

The TsunamiReady and StormReady programs are voluntary preparedness programs with established guidelines for communities to follow during an emergency response to tsunamis and severe weather. TsunamiReady and StormReady communities such as Sitka have incorporated guidelines set by the NWS and ADES in the areas of communication, warning reception and dissemination, hazard mitigation, public outreach and awareness, and administrative planning.

NOAA's National Weather Service Tsunami Warning Center in Palmer, AK is responsible for issuing Tsunami Watches and Warnings for Alaska and the entire U.S. West Coast. They also issue statements when large earthquakes are not expected to trigger a tsunami. Paul Whitmore is the Geophysicist In Charge at the West Coast/Alaska Tsunami Warning Center. He had this to say about communities like Sitka going that extra mile of preparedness: "Preparation and advance warning are vital factors in tsunami readiness. Citizens in a seaside community, such as Sitka, which is in an area prone to earthquakes, must understand the importance of moving inland and to higher ground immediately. When a disaster occurs, a StormReady or TsunamiReady community will be better prepared for its citizens."

So rest a little easier the next time you visit the beautiful city of Sitka. Their local emergency management officials have done everything they can to ensure a swift, organized emergency response in the event of a natural disaster.

From left to right are John Pennington (Regional Director of FEMA Region 10), Dave Miller (Sitka Fire Chief and Emergency Manager), Tom Ainsworth (Meteorologist In Charge, National Weather Service Juneau), Hugh Bevan (Sitka City Administrator), and Dave Liebersbach (Director for the Alaska Division of Emergency Services).

To become TsunamiReady, *Tsunami Evacuation Route* signs must be set up throughout the community. In the event of a Tsunami Warning, these signs direct visitors and local residents away from predetermined "hazard zones" to "safe areas." Local officials must work with the Alaska Division of Emergency Services and Alaska Department of Transportation to acquire these signs.

Why your community should become TsunamiReady and StormReady

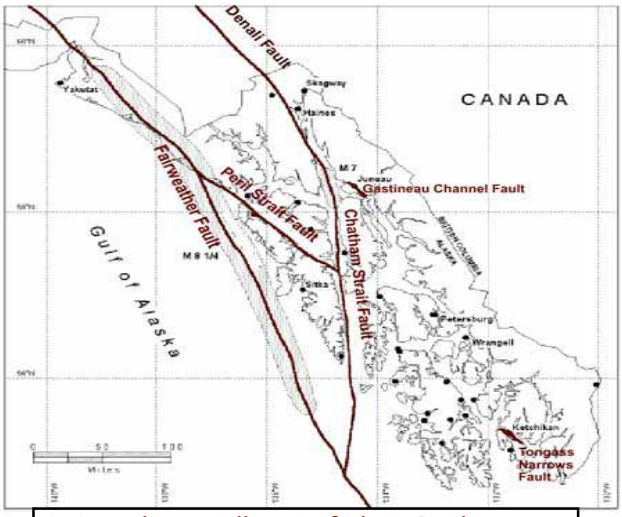
By Chris Maier

Since 9/11 a lot has been accomplished in our great country to be better prepared. The Department of Homeland Security, which the U.S. Coast Guard and FEMA are now a part of, has worked toward mitigating our threat from terrorists. In a similar approach the National Weather Service has partnered with FEMA, state emergency management agencies (in our state that agency is the Alaska Division of Emergency Services), and with local emergency management officials in the TsunamiReady and StormReady programs. These programs help local communities improve their emergency preparedness and response to natural disasters. These programs also help identify environmental hazards in communities and formulate strategies to mitigate their potential impacts.

In Alaska, millions of tax dollars are spent each year responding to natural disasters. Over the past couple years alone we had the major Denali Fault Earthquake, hurricane force wind storms and a record snow storm in Anchorage, and a record flood event on the Kenai Peninsula. In addition, there have been wildfires, blizzards, avalanches, volcanoes, tsunamis, mud slides, and major ice jam flooding during breakup. Just about the only thing we did not have were major tornadoes! (We do get small tornadoes, by the way, just not the kind that cause F4 or F5 damage like in the Great Plains.) Federal, state and local governments are being asked to be more and more responsible with their budgets. A simple plea for emergency funds after a disaster isn't cutting it anymore. The focus has shifted to preparedness planning and hazard mitigation. Spending less money preparing ahead of time will hopefully reduce the need for a more expensive response after a disaster. To emphasize this strategy, forward thinking communities who have successfully filed a Hazard Mitigation Plan with ADES and FEMA, are being awarded grants to mitigate identified environmental hazards in their communities. TsunamiReady and StormReady communities are expected to have a Hazard Mitigation Plan in place.

When a community successfully achieves StormReady and TsunamiReady status, everyone wins. Civic leaders, emergency responders, local residents, private industry, tourists, the NWS, ADES, and FEMA...we all gain when a community is better prepared. Here are just a few of the benefits your community will realize by becoming StormReady and TsunamiReady:

• Demonstrates forward thinking and being well prepared to respond to a natural disaster;
• Improves the timeliness and effectiveness of severe weather and tsunami warnings;
• Detailed recommendations will help local emergency managers improve their handling of environmental disasters;
• Enables communities to receive federal grants through ADES that will support their Hazard Mitigation Plan. Funding for the initial installation of the "Tsunami Evacuation Route" signs (page 4) is an example;



Active and potentially active faults in Southeast Alaska. **(Map from the Hansen and Combellick, 1998 report: *Planning Scenario Earthquakes For Southeast Alaska*, Alaska DNR, Division of Geological & Geophsical Surveys.)**

• Provides a means of acquiring additional Community Rating System points assigned by the National Flood Insurance Program (NFIP);
• The StormReady and TsunamiReady programs can also help ensure your community is prepared for other civil emergencies.

In Southeast Alaska, we do have several active and "potentially active" earthquake faults. The Fairweather fault is known to be active. A magnitude 8.2 earthquake in 1899 resulting in a tsunami over 32 feet high in Yakutat Bay. A magnitude 7.9 earthquake on that same fault resulted in the famous Lituya Bay "local tsunami" after a major land slide. Local tsunamis generated from land slides are the major threat across our Inner Channels.

It's up to us to take the initiative to prepare our local communities *before* a major event occurs. ADES and the NWS have partnered in TsunamiReady and StormReady, programs that can serve as road maps to your community can reach its destination of "being prepared." Being recognized as TsunamiReady and StormReady means your community is well prepared to receive warnings before disaster strikes and respond appropriately. Remember it's not a matter of *'if'* an earthquake and tsunami will impact Southeast Alaska, it's a question of *'when.'*

For more information on having your Southeast Alaska community established as TsunamiReady and StormReady, please have your designated local emergency manager contact me at 790-6803 or chris.maier@noaa.gov I'll be able to help them start the process and provide the necessary contacts to ADES. For more information on the web, please visit:
StormReady web site: www.StormReady.noaa.gov
TsunamiReady web site: www.tsunami.gov
ADES web site: www.ak-prepared.com

For your community to become StormReady and TsunamiReady, here is what needs to get done:

• Incorporate your community's natural disaster threats (including a tsunami evacuation plan) into your community's hazard mitigation and emergency response plans. You can easily create those plans from templates that ADES will provide if either or both have never been created.

• Create a map of where tsunami evacuation route signs will be placed in your community. ADES will work with your community on this goal and pay for the initial cost of the signs.

• Establish a 24 Hour Warning Point and Emergency Operations Center.

• Establish multiple ways to receive severe weather and tsunami warnings and to alert the public.

• Create a system that monitors weather conditions locally.

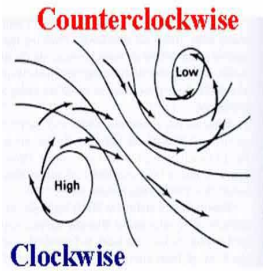
• Promote the importance of public readiness through community seminars, tsunami awareness brochures, severe weather spotter training and by conducting emergency exercises.

Cloudburst Classroom

by Kimberly Vaughan

WIND: IT CAN REALLY MOVE YOU!

Correction: In the last edition of the "Cloudburst Classroom" it was stated that "if the humidity of air increases, the water molecules make the air more dense (and vice versa)." Actually moist air is less dense than dry air! We apologize for any confusion this might have caused.



Depicted above is the wind circulation in the Northern Hemisphere.

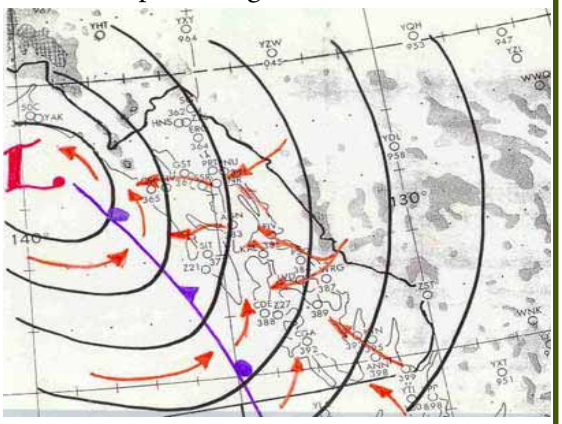
The pressure wind exerts increases with the square of the wind speed. So when the wind speed doubles, it's force increases fourfold. That means an 80 mph is four times as powerful as a 40 mph wind.

Wind affects us every day, whether by being too strong, calm or somewhere in between. We all know wind is the movement of air...but what causes it to move? Once wind develops, what happens to it? What are some different winds unique to certain geographical locations? These are the three questions that will be discussed, so tie on your hat and prepare to get blown away!

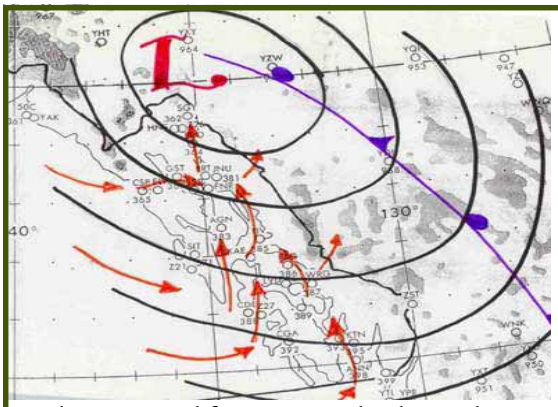
Wind is the result of a balancing act that the atmosphere is trying to achieve. (Lucky for us it never quite does!) Air moves from areas of high pressure to areas of low pressure. This creates wind, that's simple enough. It's got to get harder...right?! This movement is referred to as the pressure gradient force. The greater the difference between the High and Low pressure centers, and the closer they are to each other, the stronger the wind. Sound a bit strange? Think about a fire hose. The rate at which the water flows from the hose can be thought of as the wind speed. The two ways we can make the water run faster (or increase the wind speed) is to open the faucet more (larger pressure difference), or to squeeze the opening of the hose (decrease the distance between the two pressures areas). The closer isobars (lines of equal pressure) are to each other on a weather map, the stronger the winds will be in that region. If the pressure gradient force was the only factor in determining wind direction, they would run parallel with the isobars, but there is something more to it, and that something is called the Coriolis effect.

"The greater the difference between the High and Low pressure centers, and the closer they are to each other, the stronger the wind."

The Coriolis effect. In 1835, a gentleman by the name of Gustav-Gaspard Coriolis *(core - e - ol - iss)* was the first to mathematically describe this curving movement to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. (We are just going to focus on what happens in the Northern Hemisphere.) Due to the rotation of the earth, wind and even ocean currents are pushed to their right. When we say "to their right" we mean that with the wind is at "their" back. A neat bit of trivia is when standing with the wind to your back, lower pressure is to your left. That's always true if the winds are not being influenced by topography. The amount that the winds are pushed to the right is determined by the speed of the wind and the strength of the pressure gradient force. The wind speed and the Coriolis effect are nearly in balance in our atmosphere. So when the pressure gradient force



As a storm moves into Southeast Alaska from the Gulf, the pressure gradient tightens and winds increase. The complex terrain of the Panhandle wreaks havoc with wind direction.



As the storm and front move inland, wind direction shifts around to the west-northwest over open ocean. Winds still follow the terrain, however, across the Inner Channels of the Panhandle.

becomes stronger than the Coriolis effect, winds are pushed more sharply toward the center of low pressure.

We know that high or low pressure affects us not only in the vertical, but the horizontal as well. From the surface to a variable height known as the boundary layer (height at which the wind is not affected by topography) winds are slowed down by friction. Friction occurs as the air is drug across the land and even some large man-made structures. As the wind speed decreases, the strength of the Coriolis effect also decreases, causing a sharper counter-clockwise (cyclonic) turn into the lower pressure. As we move up into the atmosphere and above the boundary layer, the Coriolis effect becomes stronger as the wind speeds increase. As a result, the winds will be pushed more gradually around any low pressure area. Friction not only affects the wind direction on the large scale, but the small scale as well. We've all been walking around a building and after rounding a corner felt a definite difference in the wind speed. Another great example of this is the difference in winds at Haines and Skagway. Skagway is located in a north-south orientated river valley, where Haines is in a more northwest-southeast orientated spot. So, for example, if there was a westerly wind, Haines would mainly have a northwest wind, while Skagway would have a more northerly wind. The steep mountain terrain causes countless areas of "local winds," giving even more of a challenge to forecasting Alaska's wonderful weather.

Winds around the world have been given some unique names. They all frequently occur in specific geographic regions due to the influence of the terrain. Here are just a handful:

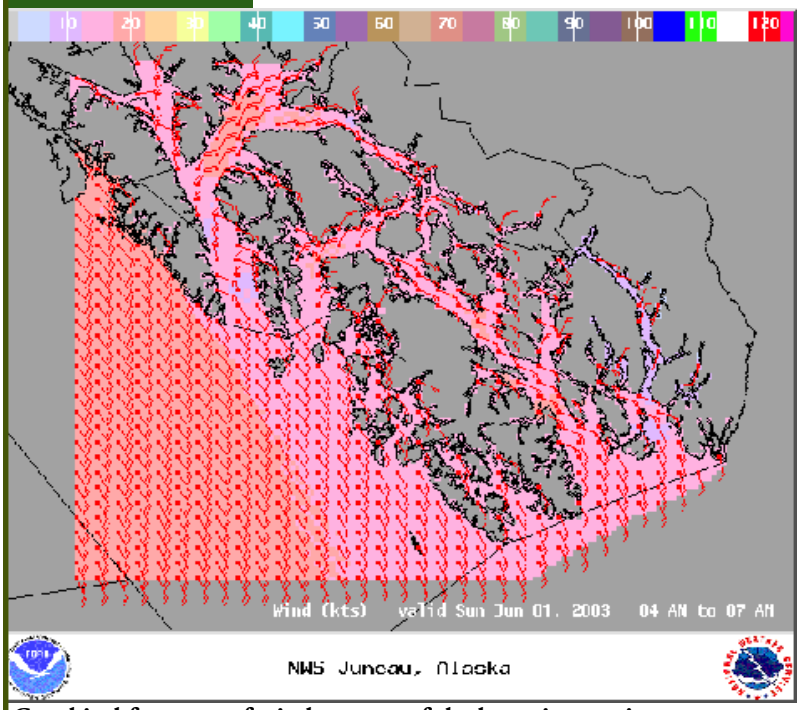
- Foehn *(fern)* - a warm, dry downslope wind on the lee side of the Alps.
- Chinook - the name given to the foehn winds in western North America.
- Santa Ana - a strong, dry, hot wind blowing from the desert regions of southern California toward the Pacific coast.
- Williwaw - a violent squall in the Straits of Magellan.
- Kona - a southwest, rain-bringing wind in Hawaii.
- Haboob - a desert wind strong enough to kick up a sandstorm or dust storm, usually in North Africa or southwest North America.
- Taku - a strong, east-northeast downslope wind, occurring in downtown Juneau and Douglas.

Before Taku winds develop, one of the things our forecasters monitor is the strength of the pressure gradient between northwest British Columbia and Juneau.

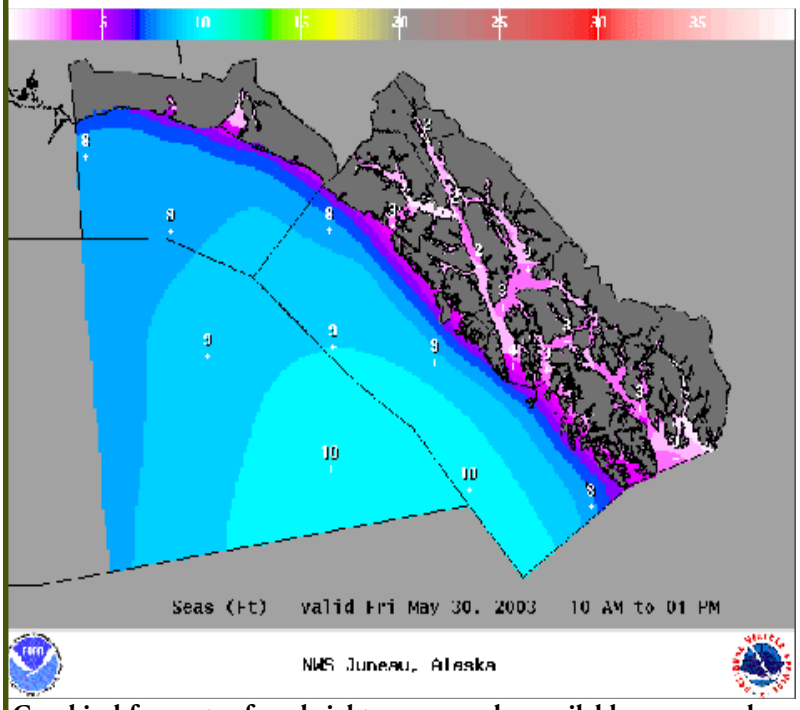
Taku winds of varying strength impact the downtown Juneau and Douglas area roughly four times a year, usually between October and March.

The Latest and Greatest on IFPS

By Brian Bezenek



Graphical forecasts of wind are one of the latest innovations on our web site. You can view all of Southeast Alaska, or zoomed-in images of the Northern or Southern (depicted above) Panhadle.



Graphical forecasts of sea heights are now also available on our web site. Mariners planning a voyage might find these visualizations useful in combination with our text forecasts.

Starting this month, our complement of graphical forecast products displayed on the web will be nearly complete. Recall from previous articles that these graphical forecasts are being generated from our new Interactive Forecast Preparation System or IFPS. The latest additions include sea level pressure, wind, and sea heights. We will be adding a few more graphics in the future. These will include snowfall, relative humidity, and a fire weather type of product. The snowfall graphic will be the first to make an appearance sometime this fall.

Meanwhile, there will be several changes going on behind the scenes. Most of them deal with upgrading the program that is being used to create the images. Another will be the work on the 'image to text' programs. This program will actually generate our future text forecasts from the graphics we create. While all this work is going on, the rest of the forecast staff are becoming more proficient in developing the images and adding our knowledge of the weather patterns to them.

As promised in the earlier newsletter, I will bring out a question or two that I have received. Feel free to keep sending in questions and comments. One of the questions was... What does PoP mean? Well, it stands for Probability of Precipitation, which is the chance that measurable precipitation will occur. A second question was on where we got our temperature information for the higher elevations. With clear conditions we can use satellites to gather the data that would be used for the first couple of hours of the images. We do, however, rely heavily on data from our computer models for the remainder of the time.

So that's the scoop for this summer. If you have any more questions or comments, I would like to hear them and will do what I can to answer them for you.

THE COOPERATIVE WEATHER OBSERVER PROGRAM - THE BACKBONE OF THE NATIONAL CLIMATE RECORDS

By Pete Rahe

Over 11000 National Weather Service (NWS) Cooperative Weather Observers nationwide donate 1 million+ hours each year to collect vital weather data that becomes part of the national climatic records. This data is invaluable in learning more about the floods, drought, heat, and cold waves affecting us all. The data is also used in agricultural planning and assessment, engineering, environmental-impact assessment, utilities planning, and litigation. The data provided by Cooperative Weather Observers plays a critical role in efforts to recognize and evaluate the extent of human impacts on climate from local to global scales. NOAA scientists used this data to make early predictions on the strength and global impact of the 1997-98 El Nino that disrupted oceanic and atmospheric systems. NWS forecasters also use the data to improve daily forecasts of weather, water, and climate conditions.

The first network of cooperative weather stations was set up as a result of an act of Congress in 1890 that established the Weather Bureau, but many COOP stations began operation long before that time. John Campanius Holm's weather records, taken without the benefit of instruments in 1644-45, were the earliest known observations in the United States. Subsequently, many persons, including important historical figures such as George Washington, Thomas Jefferson, and Benjamin Franklin, maintained weather records. As Postmaster General in 1743, Jefferson effectively became the first person to track a hurricane by gathering weather reports from postmasters along the Atlantic Coast of the United States. Jefferson maintained an almost unbroken record of weather observations between 1776 and 1816 and envisioned the existing nationwide network of weather observers as early as 1776 when he began to recruit observers in Virginia.

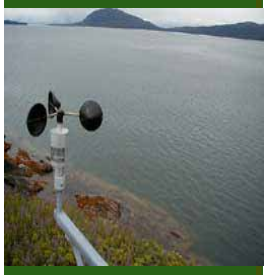
Today, the Cooperative Observer Network operates basically as it did the first year of its inception over 100 years ago. Cooperative Weather Stations, scattered over all 50 states, Puerto Rico, and the Virgin Islands, are taking weather observations seven days a week throughout the year. In Southeast Alaska we have over 30 Cooperative Weather Stations providing climatological data in otherwise data sparse or void areas. This data improves computer modeling capabilities which ultimately results in better forecasts from the NWS.

Cooperative Weather Observers come from all walks of life. Farmers, teachers, lawyers, doctors, housewives, and retirees are all among those individuals contributing to the program. Individual observers are usually longtime local residents of the area. This provides longevity and continuity of data. In addition to private citizens, many local, state, and federal government offices actively participate in the program. Power plants, water and pollution control plants, schools and universities, and members of the media also provide Cooperative Weather observations. Observers are recruited in predetermined locations to fill a specific data need. This need may be to define the climate of an area, to obtain data for NWS hydrologic operations, augment data from the Automated Surface Observing System (ASOS), or provide credible ground truth data.

At official Cooperative Weather Stations, observations are taken from instrumentation provided and maintained by the NWS. Observations are recorded from instrument readings obtained at predetermined times to form a consistent weather picture that has occurred in the local area for a specific period, usually 24 hours. These recorded weather reports are documented on NWS forms and mailed by the observer to the NWS who forwards them to the National Climatic Data Center for processing and archiving.

Currently there is a need for dedicated Cooperative Weather Observers in Hollis, Tyee, and Kasaan. Anyone interested in taking an active roll in the Cooperative Weather Observer Program is encouraged to contact Pete Rahe at the National Weather Service Forecast Office in Juneau by phone at (907) 790-6825 or **e-mail Peter.Rahe@noaa.gov.**

Equipment (shown left) is provided to Co-op Weather Observers by the NWS. Peter Rahe is our Co-op Program Manager and he maintains this equipment in Southeast Alaska. These volunteer Weather Observers are invaluable to the collection of climate data in Alaska. Many also serve their local communities by informing the NWS when adverse weather conditions are moving through.



The anemometer (wind sensor) at cape Spencer.

SOUTHEAST ALASKA CLIMATE OUTLOOK

By Chris Maier

I personally love the budding science of Climate Prediction. In Southeast Alaska, it is a real challenge to do a good job with seasonal outlooks. Basically, there just hasn't been a lot of Climate Prediction research completed that can help us. For now, the best approach is to monitor large scale climate phenomena, such as the El Niño/Southern Oscillation (ENSO) cycle, and try to relate that to historical climate trends in the Panhandle. Of course, we also are limited to only being able to give the odds or probabilities of how the upcoming seasons *should* unfold when compared to normal.

Similar to 2002, April and the better part of May were dry and warm. Also, similar to last year, June has been cooler and wetter. The big question now is how does the rest of the summer look? NOAA's Climate Prediction Center issued their combined July-August-September outlooks recently.

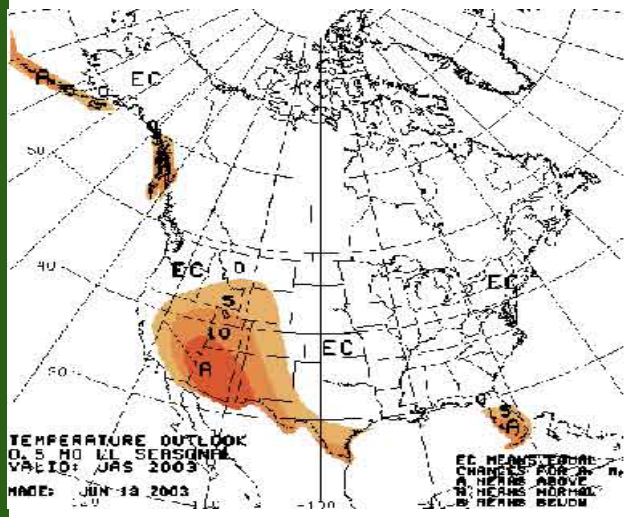
Despite the fact that above normal temperature are projected for the next 3 months, above normal rainfall is also expected. Looks as if we are going to pay for having such a nice April again. If there is a positive to take from this, when we do get those breaks in the weather the rest of this summer, temperatures will be downright balmy. So what about an early take on next winter?

""The latest statistical and coupled computer model forecasts indicate considerable uncertainty for the next several months. However, the majority of the forecasts indicate near-normal conditions in the tropical Pacific during the last half of 2003," said Vernon Kousky, lead ENSO scientist at the NOAA Climate Prediction Center. Near normal, or ENSO neutral, conditions after an El Nino event usually result in a colder winter. Snow? Well the historical weather data reveals that our colder winters more times than not result in our snowiest winters (kind of makes sense! Cold and snow?!?) That of course would be a major reversal from what we have experienced of late here in the Panhandle. We'll keep an eye on things and update you in our Autumn newsletter. For now, here is my 'long lead' projection for next winter:

Potential Southeast Alaska Winter Climate		% chance
TEMPERATURES	Above normal	15%
	Near normal	60%
	Below Normal	25%
SNOW FALL	Above normal	25%
	Near normal	60%
	Below normal	15%

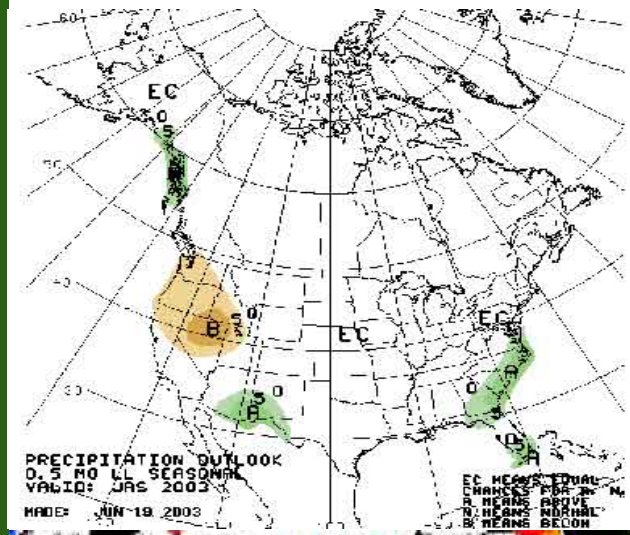
First the good news:

The latest temperature outlook (right) for the combined time period of July, August and September calls for above normal temperatures in Southeast Alaska.

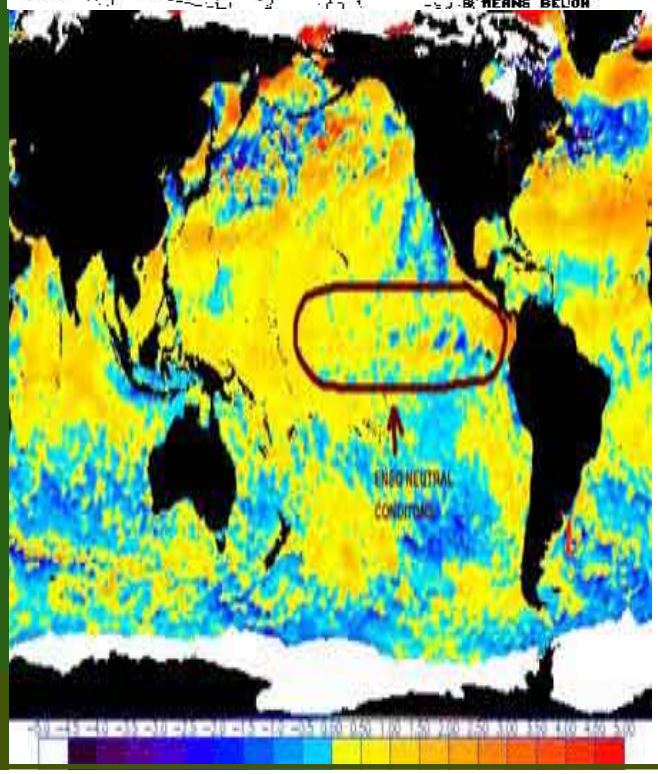


Now the bad news:

The latest precipitation outlook (right) for the combined time period of July, August and September calls for above normal precipitation in Southeast Alaska.



The NOAA Climate Prediction Center defines **ENSO neutral** conditions as normal ocean surface temperatures in the central and east-central equatorial Pacific. This means the El Niño of last winter has weakened. Historical weather data shows that after an El Niño has dissipated into ENSO neutral conditions, we ***usually*** experience a winter season closer to normal. This would mean a colder and snowier winter than in recent years.



Southeast Alaska Summer Weather Trivia

1. On average, what is the warmest town in Southeast Alaska during summer?
2. How about the 'coolest' town during our summer?
3. What Southeast Alaska town experienced a record 9 consecutive days with high temperatures of 80°F or hotter in August of 1977?
4. What is the wettest Southeast Alaska location during summer?
5. How about the wettest rain gauge in all of the United States?
6. Based on the weather records, what is the earliest date after the summer solstice that an inch of snow has fallen at sea level in the Panhandle?
7. What town is considered the "sunshine" capital of Alaska?

Bonus: Based on Climatology, what is the percent chance for sunny to partly sunny skies during summer for the following locations? ____Yakutat ____Juneau ____Annette Island

WEATHER WATCHERS

Southeast Alaska's Spotter Network

Your Weather Photo Here!

With our new newsletter format, we are now able to create cool stuff such as this space for Featured Spotter Weather Photos! Please e:mail any digital weather-related photos you would like to share to chris.maier@noaa.gov We'll present your photo here along with the credit you deserve for capturing Southeast Alaska's weather. (The only requirement on the images is that the file size must be below 5 MB.) Thanks in advance for any contributions you make!

Do you know someone interested in weather that is not a ***Weather Watcher?*** Let them know that becoming a weather spotter in Southeast Alaska is easy! You can browse through the training information on the web, we can mail you a course packet, or you can attend a short spotter course. Courses may be scheduled in any community where there is enough interest to satisfy a minimal level of attendance (usually at least 10 people). If you are interested in becoming a spotter or have some thoughts on how to improve our Weather Watchers Program, please give us a call at 790-6803 or e-mail **chris.maier@noaa.gov** You will also find more information on the "Spotter" section of our web site: ***http://pajk.arh.noaa.gov/spotter/spot.htm***

Our Most Valuable Spotter!

The primary purpose of having a network of trained Weather Spotters, is to help us monitor and warn for severe weather. Whether it is heavy snow, high winds, flooding, thunderstorms or even waterspouts your reports are integral to helping us warn the citizens of Southeast Alaska. With that in mind, we are changing how we honor our MVS (Most Valuable Spotter) each quarter. From now on, we are going to be recognizing the Weather Spotter(s) that provided the most critical reports during a significant severe weather outbreak. That is when your reports literally help save lives!

This quarter the new honor of MVS goes to two of our Weather Spotters in the Haines area. Both **Paul Swift of Haines and Betty Holgate of Mud Bay** provided critical information on the major winter storm that occurred back on March 13-14. Not only did Paul and Betty provide us with accurate snowfall amounts, but they also took the time to provide us with updates. Finally after the snow and wind had ceased, one last call gave us the storm total amounts as well as an update on if any damage resulted.

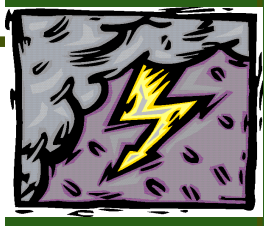
One lesson here is that whether it be by calling our 1-800-number, filing reports via our web site, or a simple e-mail, the important thing is to please let us know when severe weather is occurring in your area. The weather information conveyed by both Mr. Swift and Ms. Holgate helped our forecasters warn effectively during this storm. Both Mr. Swift and Ms. Holgate will receive National Weather Service travel mugs. They will also be receiving copies of our updated Mariner's Weather Guide Brochure, our new Southeast Alaska Summer Climate Brochure and our new Marine Weather Chart. Thanks for your service as some of Southeast Alaska's best Weather Watchers!

Weather Information for Spotters to Report:

- ***Thunderstorms***
- ***Waterspouts***
- ***Hail***
- ***Winds of 40 mph or more***
- ***Damage caused by High Winds***
- ***1/2 inch or more of rain in 1 hour***
- ***Freezing rain or freezing drizzle***
- ***Heavy Snowfall ...rates of an inch or more an hour.***
- ***4" or more of snow in 12 hours.***
- ***Roads closed or impassible due to high water***
- ***Coastal Flooding***
- ***Land or mud slides***
- ***Rivers or streams near bankfull***
- ***Any unusual weather event!***

When you report, include the following information:

1. Your name and spotter ID
2. Location and time of the weather event
3. What you spotted!



Trivia Answers: ***(1)*** *With an average temperature of 57.1 °F, Metlakatla is considered the warmest town in Southeast Alaska during summer.* ***(2)*** *Yakutat has the coolest average summer with an average temperature of 52.3 °F.* ***(3)*** *Ketchikan experienced a Southeast Alaska record 9 straight days with high temperatures 80 °F or more in August of 1977!* ***(4)*** *Little Port Walter on the southeast end of Baranof Island is the wettest location in the Panhandle with an average of 39.80" of rain in summer.* ***(5)*** *Not only is Little Port Walter the wettest rain gauge in Alaska, but it also the wettest gauge in the United States! An average of 225.53" of precipitation occurs there every year.* ***(6)*** *On September 15, 1992 an inch of snow fell in Yakutat. This was the earliest (after mid-summer) inch of snow in Southeast Alaska weather record history.* ***(7)*** *That would be Bettles with an average of 178 sunny or partly sunny days per year.* ***(Bonus)*** *Yakutat...20% Juneau...25% Annette Island...31%*